

REMARKS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Official Action provided, for the acknowledgment of Applicants' Claim for Priority and receipt of the certified copy of the priority document, and for the acknowledgment of Applicants' Information Disclosure Statement by return of the Form PTO-1449.

Upon entry of the above amendment, claims 1, 6-9, 12, 14, and 21 will have been amended, and claims 2-5 will have been canceled. Accordingly, claims 1 and 6-22 are currently pending. Applicants respectfully request reconsideration of the outstanding objection and rejections and allowance of claims 1 and 6-22 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

The Examiner has objected to the declaration as not complying with the requirements of 37 C.F.R. 1.63(c) since the declaration does not acknowledge the filing of JP 2003-185748 in Japan on June 27, 2003. However, it is respectfully submitted that the declaration acknowledges all foreign filings, as required. In this regard, it is noted that the filing of JP 2003-185748 in Japan is acknowledged on the Supplemental Priority Data Sheet (page 6) of the declaration filed on September 1, 2004 in the U.S. Patent and Trademark Office which is reflected in the Image File Wrapper in the PAIR system of the U.S. Patent and Trademark Office. Accordingly, in view of the above noted remarks, it is believed that the objection to the declaration is inappropriate, and Applicants respectfully request reconsideration and withdrawal of the outstanding objection.

The Examiner has objected to claims 1 and 12 for minor informalities. In response, claim 1 has been amended to set forth "in the vicinity of the other end"; and claim 12 has been amended to set forth "a removing solution of gold is acted on the gold plating layer".

Accordingly, in view of the above noted amendments and remarks, it is believed that the objection to claims 1 and 12 have been overcome, and Applicants respectfully request reconsideration and withdrawal of the outstanding objection.

The Examiner has rejected claims 4 and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner has rejected claim 1 under 35 U.S.C. § 112, second paragraph, as being an omnibus claim.

Claim 4 has been canceled. Accordingly, the rejection of claim 4 under 35 U.S.C. § 112, second paragraph, is now moot.

Claim 21 has been amended to recite “a plurality of the elements is arranged at a predetermined pitch on a side of band metal plate”. Accordingly, in view of the above noted amendments and remarks, it is believed that the rejection of claim 21 under 35 U.S.C. § 112, second paragraph, has been overcome.

With respect to claim 1, Applicant submits that claim 1 is not an omnibus claim. See M.P.E.P. §2173.05(r), which states “...an omnibus claim which reads as follows: A device substantially as shown and described”. Clearly, amended claim 1, which sets forth a contact for a connector comprising “a terminal portion provided in the vicinity of an end and a contacting portion provided in the vicinity of the other end of the contact, which are formed by processing a metal material into a predetermined shape; a foundation nickel plating layer and a gold plating layer or a metal alloy plating layer including gold, which are formed on substantially the entire surface of the contact including the terminal portion and the contacting portion; and a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has

low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal at least a part of gold and alloying remaining gold and nickel” is not an omnibus claim. Accordingly, in view of the above noted remarks, it is believed that the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, is inappropriate.

Accordingly, in view of the above noted amendments and remarks, claims 1 and 6-22 are believed to fully comply with 35 U.S.C. § 112, second paragraph, and Applicants respectfully request reconsideration and withdrawal of the outstanding rejections under 35 U.S.C. § 112, second paragraph.

Claims 1-5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 5-90835.

Although Applicants do not necessarily agree with the Examiner's rejection of the claims on this ground, nevertheless, Applicants have amended independent claim 1 to clearly obviate the above-noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that JP 5-90835 fails to teach or suggest the subject matter claimed in amended claim 1. In particular, claim 1, as amended, sets forth a contact including a “terminal portion provided in the vicinity of an end and a contacting portion provided in the vicinity of the other end of the contact, which are formed by processing a metal material into a predetermined shape; a foundation nickel plating layer and a gold plating layer or a metal alloy plating layer including gold, which are formed on substantially the entire surface of the contact

including the terminal portion and the contacting portion; and a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal of at least a part of gold and alloying remaining gold and nickel".

This amendment is fully supported by the specification, including the claims and drawings, and no prohibited new matter has been added. In Applicants' claimed invention, a contact is provided that includes a diffusion preventing area. The diffusion preventing area has a low wetting property with respect to solder. The diffusion preventing area is formed by irradiation of laser beams on the region of the contact that includes a gold plating layer plated on the nickel plating layer, which is plated on the copper material. The gold plating layer is formed as a top layer for preventing oxidation of the surface of the contact and to improve the soldering operation. In contrast, the nickel plating layer is formed to prevent the diffusion of the copper to the surface of the gold plating layer so as not to reduce the reliability of the contact. Further, the contact is hardened by providing the nickel plating layer, so that the life of the contact becomes longer. Since the gold plating layer is formed on the terminal portion to be soldered on the circuit board, then, the melted solder can easily diffuse along the gold plating layer. Consequently, the diffusion preventing area, which has low wetting property with respect to solder, must be formed between the terminal portion and the contacting portion.

According to the present invention, the diffusion preventing area can be easily formed by irradiating the laser beams to the conventional contact. The laser beams can be irradiated in any atmosphere, such as in the air. By irradiating the laser beams, for example, at least a part of gold or metal alloy including gold at a portion irradiated by laser beams is evaporated or removed, so that foundation nickel plating layer is unsheathed. Further, an oxide layer of nickel may be further formed on the surface of the unsheathed foundation nickel plating layer. The oxide layer will contribute to decrease the wetting property with respect to solder. Similarly, a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy or a metal alloy layer which is formed of evaporation and removal of at least a part of gold and alloying the remaining gold and nickel may be formed as the diffusion of the irradiation of the laser beams.

Additionally, the present invention has advantages when applied to conventional contacts, since the connector may be irradiated with laser beams with no change of design. The irradiation of the laser beams can be carried out continuously in a high speed to the curved contacts. Therefore, the process to irradiate the laser beams to the contacts of the present invention is improved.

However, JP 5-90835 fails to teach or suggest a contact including "a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of

diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal of at least a part of gold and alloying remaining gold and nickel”, as recited in amended claim 1.

The JP 5-90835 document discloses a contact 1 including a soldering area 2, a contact surface 4, an intermediate portion 3 between the soldering area 2 and the contact surface 4. As described in paragraph [0012] of the translation, the contact surface 4 comprises gold; and the intermediate area 3 comprises nickel deposit with compounded PTFE. The nickel deposit with compounded PTFE is plated onto the contact 1. Further, the gold is plated onto the nickel deposit with compounded PTFE, at the location of the contact surface 4, only. JP 5-90835 fails to disclose plating gold onto the nickel deposit and then subsequently removing the plated gold at particular locations of the contact. It is noted that the intermediate area 3 disclosed in JP 5-90835 includes PTFE. Further, JP 5-90835, specifically discloses that the nickel plating with compounded PTFE is plated onto the entire contact, then gold is plated onto only the contact surface 4. This plating process leaves nickel deposit with compounded PTFE exposed in the intermediate area 3. Clearly, JP 5-90835 does not disclose, teach or suggest removing or changing any plating. Accordingly, since in applicant's claimed invention, the diffusion preventing area is formed by removing or altering the plating deposited on the contact, the JP 5-90835 process of forming the contact is clearly a different technique from the present invention. In addition, the intermediate area 3 of the JP 5-90835 cannot fairly be described as “unsheathed” as recited in amended claim 1, since no material has been removed from the plating of the JP 5-90835 contact.

Moreover, Applicants' method of forming the contact by removing or altering the deposited gold or alloy clearly produces an article that is different from the article produced in

the prior art. The JP 5-90835 contact includes compounded PTFE with the nickel deposit. This compounded PTFE is not present in the diffusion preventing area in Applicants' claimed invention. Thus, the JP 5-90835 contact is very different from the claimed product. The method of producing the contact in Applicants' claimed invention produces a different contact. Accordingly, the prior art does not disclose a product that is substantially similar to the claimed product; and the process steps associated with the claimed product result in a materially different product from that of the prior art.

Further, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including "a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal of at least a part of gold and alloying remaining gold and nickel", as recited in amended claim 1. Therefore, even if one were led to make the modification asserted by the Examiner, the claimed combination would not result. Accordingly, Applicants submit that a factual basis for the rejection has not been established and thus a prima facie case of obviousness has not been established, and that rejection of claim 1, as amended, under 35 U.S.C. § 103(a) can only result from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the

rejection of claim 1 under 35 U.S.C. § 103(a) over JP 5-90835 is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 1-5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over MORIUCHI et al. (U.S. Patent No. 5,957,736).

Although Applicants do not necessarily agree with the Examiner's rejection of the claims on this ground, nevertheless, Applicants have amended independent claim 1 to clearly obviate the above-noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that MORIUCHI et al. fails to teach or suggest the subject matter claimed in amended claim 1. In particular, claim 1, as amended, sets forth a contact including a “terminal portion provided in the vicinity of an end and a contacting portion provided in the vicinity of the other end of the contact, which are formed by processing a metal material into a predetermined shape; a foundation nickel plating layer and a gold plating layer or a metal alloy plating layer including gold, which are formed on substantially the entire surface of the contact including the terminal portion and the contacting portion; and a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal of at least a part of gold and alloying remaining gold and nickel”.



However, MORIUCHI et al. fails to teach or suggest a contact including “a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal of at least a part of gold and alloying remaining gold and nickel”, as recited in amended claim 1.

The MORIUCHI et al. patent discloses a contact 1 including a nickel oxide layer portion 4, a terminal portion 2, and a contact portion 3. As described in column 4, lines 14-27, the nickel oxide layer portion 4 prevents wicking of the solder; and the contact portion 3 is plated with gold. Further, the MORIUCHI et al. device is formed by depositing plating on the terminal portion 2 with solder, plating the contact portion 3 with gold, and providing a layer of nickel on the contact. The layer of nickel is then oxidized to form the nickel oxide layer portion 4. Accordingly, MORIUCHI et al. fails to disclose plating gold onto the nickel deposit and then subsequently removing the plated gold at particular locations of the contact. It is noted that the nickel oxide layer portion 4 disclosed in MORIUCHI et al. includes nickel oxide. Clearly, MORIUCHI et al. does not disclose, teach or suggest removing or changing any plating. Accordingly, since in applicant’s claimed invention, the diffusion preventing area is formed by removing or altering the plating deposited on the contact, the MORIUCHI et al. process of forming the contact is clearly a different technique from the present invention. In addition, the

nickel oxide layer portion 4 disclosed in MORIUCHI et al. cannot fairly be described as “unsheathed” as recited in amended claim 1, since no material has been removed from the plating of the MORIUCHI et al. contact.

Moreover, Applicants’ method of forming the contact by removing or altering the deposited gold or alloy clearly produces an article that is different from the article produced in the prior art. The MORIUCHI et al. contact includes nickel oxide with the nickel deposit. This nickel oxide is not present in the diffusion preventing area in Applicants’ claimed invention. Thus, the MORIUCHI et al. contact is very different from the claimed product. The method of producing the contact in Applicants’ claimed invention produces a different contact. Accordingly, the prior art does not disclose a product that is substantially similar to the claimed product; and the process steps associated with the claimed product result in a materially different product from that of the prior art.

Further, Applicants submit that nothing in the applied prior art teaches or suggests the claimed combination including “a diffusion preventing area formed between the terminal portion and the contacting portion by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold, which has low wetting property with respect to solder so that melted solder rarely diffuses thereon, the diffusion preventing area being one selected from the foundation nickel plating layer becoming unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold; a metal alloy layer formed of alloying gold and nickel; a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and a metal alloy layer which is formed due to evaporation and removal of at least a part of gold and alloying remaining gold and nickel”, as recited in amended claim 1. Therefore, even if one were led to make the modification asserted by the Examiner, the claimed combination would not

result. Accordingly, Applicants submit that a factual basis for the rejection has not been established and thus a prima facie case of obviousness has not been established, and that rejection of claim 1, as amended, under 35 U.S.C. § 103(a) can only result from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) over MURIUCHI et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 5-90835 in view of JP 60-238489.

Although Applicants do not necessarily agree with the Examiner's rejection of claim 6 on this ground, nevertheless, Applicants have amended independent claim 6 to clearly obviate the above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that JP 5-90835 and JP 60-238489 fail to teach or suggest the subject matter claimed in amended claim 6. In particular, claim 6, as amended, sets forth a manufacturing method of an element to be soldered including, inter alia, "processing a metal material into a predetermined shape in a manner so that a terminal portion is formed in the vicinity of an end of the element; forming a foundation nickel plating layer, and a gold plating layer or a metal alloy plating layer including gold, on substantially the entire surface of the element including the terminal portion; and forming a diffusion preventing area, which has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered".

The JP 5-90835 document discloses a contact 1 including a soldering area 2, a contact surface 4, an intermediate portion 3 between the soldering area 2 and the contact surface 4. The

contact surface 4 comprises gold; and the intermediate area 3 comprises nickel deposit compounded PTFE plated onto the contact 1. Further, the gold is plated onto the nickel deposit with compounded PTFE, at the location of the contact surface 4, only. As recognized by the Examiner, JP 5-90835 fails to teach or suggest using laser beams to form a diffusion preventing area, as set forth in amended claim 6.

The JP 60-238489 document is directed to a method of forming a metallic coating layer. Although JP 60-238489 discloses the use of lasers, the irradiation of the laser beams in the JP 60-238489 method are performed in vacuum or in an inert gas atmosphere. Therefore, the oxide layer may rarely be formed on the surface of the unsheathed foundation plating layer. This is in contradistinction to Applicants' claimed method in which the laser beams are irradiated in the air, and not in a vacuum or in an inert gas atmosphere. Further, the prior art process of irradiating the laser beams to the contacts will be inferior to that of the present invention, since the contact in the prior art must be set in the vacuum or inert gas atmosphere chamber. JP 60-238489 fails to teach or suggest a method including irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold. Accordingly, JP 60-238489 fails to teach or suggest a method including forming a diffusion preventing area by irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold, as recited in amended claim 6.

Therefore, the JP 60-238489 document fails to cure the deficiencies of the JP 5-90835 device, and even assuming, arguendo, that the teachings of JP 5-90835 and JP 60-238489 have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35

U.S.C. § 103(a) over JP 5-90835 in view of JP 60-238489. Thus, the only reason to combine the teachings of JP 5-90835 and JP 60-238489 results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over JP 5-90835 in view of JP 60-238489 is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over MORUICHI et al. in view of JP 60-238489.

Although Applicants do not necessarily agree with the Examiner's rejection of claim 6 on this ground, nevertheless, Applicants have amended independent claim 6 to clearly obviate the above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that MORUICHI et al. and JP 60-238489 fail to teach or suggest the subject matter claimed in amended claim 6. In particular, claim 6, as amended, sets forth a manufacturing method of an element to be soldered including, inter alia, "processing a metal material into a predetermined shape in a manner so that a terminal portion is formed in the vicinity of an end of the element; forming a foundation nickel plating layer, and a gold plating layer or a metal alloy plating layer including gold, on substantially the entire surface of the element including the terminal portion; and forming a diffusion preventing area, which has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered".

The MORIUCHI et al. patent discloses a contact 1 including a nickel oxide layer portion 4, a terminal portion 2, and a contact portion 3. As recognized by the Examiner, MORIUCHI et

al. fails to teach or suggest using laser beams to form a diffusion preventing area, as set forth in amended claim 6.

The JP 60-238489 document is directed to a method of forming a metallic coating layer. Although JP 60-238489 discloses the use of lasers, the irradiation of the laser beams in the JP 60-238489 method are performed in vacuum or in an inert gas atmosphere. Therefore, the oxide layer may rarely be formed on the surface of the unsheathed foundation plating layer. This is in contradistinction to Applicants' claimed method in which the laser beams are irradiated in the air, and not in a vacuum or in an inert gas atmosphere. Further, the prior art process of irradiating the laser beams to the contacts will be inferior to that of the present invention, since the contact in the prior art must be set in the vacuum or inert gas atmosphere chamber. JP 60-238489 fails to teach or suggest a method including irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold. Accordingly, JP 60-238489 fails to teach or suggest a method including forming a diffusion preventing area by irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold, as recited in amended claim 6.

Therefore, the JP 60-238489 document fails to cure the deficiencies of the MORIUCHI et al. device, and even assuming, arguendo, that the teachings of MORIUCHI et al. and JP 60-238489 have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of JP 60-238489. Thus, the only reason to combine the teachings of MORIUCHI et al. and JP 60-238489 results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection

of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of JP 60-238489 is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 5-90835 in view of HASHIMOTO et al. (U.S. Patent No. 4,772,772).

Although Applicants do not necessarily agree with the Examiner's rejection of claim 6 on this ground, nevertheless, Applicants have amended independent claim 6 to clearly obviate the above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that JP 5-90835 and HASHIMOTO et al. fail to teach or suggest the subject matter claimed in amended claim 6. In particular, claim 6, as amended, sets forth a manufacturing method of an element to be soldered including, inter alia, "processing a metal material into a predetermined shape in a manner so that a terminal portion is formed in the vicinity of an end of the element; forming a foundation nickel plating layer, and a gold plating layer or a metal alloy plating layer including gold, on substantially the entire surface of the element including the terminal portion; and forming a diffusion preventing area, which has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered".

The JP 5-90835 document discloses a contact 1 including a soldering area 2, a contact surface 4, an intermediate portion 3 between the soldering area 2 and the contact surface 4, but, as recognized by the Examiner, JP 5-90835 fails to teach or suggest using laser beams to form a diffusion preventing area, as set forth in amended claim 6.

HASHIMOTO et al. is directed to a method of preparing alloy layers by irradiating with high energy density beams. Although HASHIMOTO et al. discloses the use of lasers, the

irradiation of the laser beams in the HASHIMOTO et al. method are performed in order to provide a corrosion resistant and strong alloy. HASHIMOTO et al. does not teach or suggest preparing alloy layers to remove gold and to unsheathe a nickel layer to provide a diffusion preventing area. HASHIMOTO et al. fails to teach or suggest a method including irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold to provide a diffusion preventing area. Accordingly, HASHIMOTO et al. fails to teach or suggest a method including forming a diffusion preventing area by irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold, as recited in amended claim 6.

Therefore, HASHIMOTO et al. fails to cure the deficiencies of the JP 5-90835 device, and even assuming, arguendo, that the teachings of JP 5-90835 and HASHIMOTO et al. have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over JP 5-90835 in view of HASHIMOTO et al. Thus, the only reason to combine the teachings of JP 5-90835 and HASHIMOTO et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over JP 5-90835 in view of HASHIMOTO et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Claims 6-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over MORUICHI et al. in view of HASHIMOTO et al.

Although Applicants do not necessarily agree with the Examiner's rejection of claim 6 on this ground, nevertheless, Applicants have amended independent claim 6 to clearly obviate the



above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that MORUICHI et al. and HASHIMOTO et al. fail to teach or suggest the subject matter claimed in amended claim 6. In particular, claim 6, as amended, sets forth a manufacturing method of an element to be soldered including, inter alia, “processing a metal material into a predetermined shape in a manner so that a terminal portion is formed in the vicinity of an end of the element; forming a foundation nickel plating layer, and a gold plating layer or a metal alloy plating layer including gold, on substantially the entire surface of the element including the terminal portion; and forming a diffusion preventing area, which has low wetting property with respect to solder so that the melted solder rarely diffuses thereon, by irradiating laser beams on the gold plating layer or the metal alloy plating layer including gold at a portion between the terminal portion and a portion not to be soldered”.

The MORIUCHI et al. patent discloses a contact 1 including a nickel oxide layer portion 4, a terminal portion 2, and a contact portion 3. As recognized by the Examiner, MORIUCHI et al. fails to teach or suggest using laser beams to form a diffusion preventing area, as set forth in amended claim 6.

HASHIMOTO et al. is directed to a method of preparing alloy layers by irradiating with high energy density beams. Although HASHIMOTO et al. discloses the use of lasers, the irradiation of the laser beams in the HASHIMOTO et al. method are performed in order to provide a corrosion resistant and strong alloy. HASHIMOTO et al. does not teach or suggest preparing alloy layers to remove gold and to unsheathe a nickel layer to provide a diffusion preventing area. HASHIMOTO et al. fails to teach or suggest a method including irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold to provide a diffusion preventing area. Accordingly, HASHIMOTO et al. fails to teach or suggest a method

including forming a diffusion preventing area by irradiating laser beams on a gold plating layer or a metal alloy plating layer including gold, as recited in amended claim 6.

Therefore, HASHIMOTO et al. fails to cure the deficiencies of the MORIUCHI et al. device, and even assuming, arguendo, that the teachings of MORIUCHI et al. and HASHIMOTO et al. have been properly combined, Applicants' claimed manufacturing method of an element to be soldered would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of HASHIMOTO et al. Thus, the only reason to combine the teachings of MORIUCHI et al. and HASHIMOTO et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 6 under 35 U.S.C. § 103(a) over MORIUCHI et al. in view of HASHIMOTO et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Applicants submit that dependent claims 7-22, which are at least patentable due to their dependency from claim 6, for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record based on the additionally recited features.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections, and an early indication of the allowance of claims 1 and 6-22.

#### SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that the present amendment is proper and that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicants' invention as recited in claims 1 and 6-22. The applied

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references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

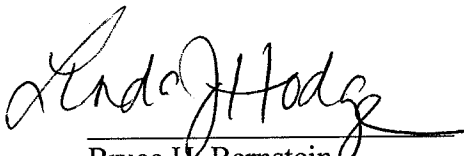
Accordingly, consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present amendment and all of the claims therein are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Any amendments to the claims which have been made in this amendment, which do not narrow the scope of the claims, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered cosmetic in nature, and to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
Yasunori MIKI et al.

  
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